NYC Greenpoint Incinerator/MTS Site
Upland Site Summary

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SITE NAME: GREENPOINT MARINE TRANSFER STATION AND INCINERATOR

Address: 1 Kingsland Avenue aka 447-509 North Henry Street, Brooklyn

Tax Lot Parcel(s): 2508/1

Latitude: 40.735657

Longitude: 73.94574

Regulatory Programs/Numbers/Codes: NYSDEC General Permit No. 2-6500-0037/00007; NYSDEC General Permit No. 2-6500-0043/00012; Spill #0012519

Analytical Data Status: ☐ Electronic Data Available x Hardcopies only ☐ No Data Available

1 SUMMARY OF CONSTITUENTS OF POTENTIAL CONCERN (COPCS) TRANSPORT PATHWAYS TO THE CREEK

Overland Transport:

No specific evidence of overland transport was identified in the available site records. Aerial photos show that the site is completely paved at present; reportedly it was similarly paved during the time of the operation of the incinerator and marine transfer station. Stormwater drainage from the paved areas flows to two catch basins, which discharge to the Creek. Accordingly, little or no stormwater bearing contaminants at the site is expected to infiltrate into the ground or flow overland towards Newtown Creek. There is insufficient information to determine whether overland transport is a historic or current pathway.

Bank Erosion:

No specific evidence of bank erosion was identified in the available site records. Soil and groundwater contamination have been identified on the site, but a bulkhead extends along the entire shoreline. While this is unlikely a historic or current complete pathway, there is insufficient information to make a pathway determination.

Groundwater:

According to the 2004 Phase II Environmental Site Investigation (ESI), groundwater at the site was found to generally flow south toward the wastewater treatment plant. Due to the time of the study, it is possible that the groundwater was influenced by dewatering activity for that plant's construction or by the Mobil subsurface oil spill recovery effort nearby. Flow appears to be influenced by a variety of factors, including seasonal precipitation, varying backfill placement, compaction, ongoing product recovery operations, and tidal fluctuations.

A spill was reported to NYSDEC in 2001 stemming from a #2 fuel oil tank tightness test failure. The tank has been removed and sampling indicates no contamination. The City is petitioning DEC for closure of this spill. Soil borings conducted in 2004 indicated evidence of petroleum, notably in proximity to the former oil terminal. There is insufficient information to determine if groundwater was a complete pathway historically or is a complete pathway currently.

Overwater Activities:

Historical site activities included Marine Transfer Station (MTS) operations, including loading municipal solid waste and quenched bottom ash residue inside the MTS building on the pier into barges directly below for transport. There is no indication of spillage into the water from such activities. Reviewed information did not specify other DOS historical overwater activities. Operations at an oil terminal previously on the site prior to City ownership may have included overwater activities. There is insufficient information to determine if overwater activities were a potentially complete historic pathway. Because the incinerator was demolished in 2005 and the MTS ceased operations in 2001, there are no longer overwater activities at this site and the current pathway is not complete.

Stormwater/Wastewater Systems:

Quench water from the incinerator was contained within the incinerator building and periodically removed by vacuum truck for proper disposal offsite by licensed contractors. Other wastewater from the site, such as sanitary flow, was discharged to the City's sanitary sewer. Stormwater from the incinerator building roof is believed to have flowed

to the City's sanitary sewer. The stormwater runoff from MTS building roof and pier discharged to Newtown Creek. Wastewater from the MTS did not discharge directly to waterway. Stormwater drainage from the paved areas flows to two catch basins, which discharge to the Creek. Records indicate that NYSDEC issued DOS a Notice of Violation (NOV) for unpermitted discharge to Newtown Creek from the facility on July 26, 1990. The pump believed to have caused the discharge was subsequently fixed. This may have been a potentially complete temporary pathway historically, but there is not enough information to determine if stormwater or wastewater is a current complete pathway.

Air Releases:

The four incinerator stacks discharged smoke and fly ash particulates to the City's air shed subject to limitations and testing pursuant to a consent decree with USEPA. The Decree settled, without admission of guilt or liability, alleged CAA violations regarded opacity and particulate matter levels on May 6 and Sept 15 1987. The decree provided for a schedule of capital improvements and a stack testing procedure, plus installation of continuous emissions monitoring on all four incinerator units, and an agreed limit of three opacity excursions per calendar quarter (caused by wet or dense garbage) pending implementation of the upgrades. Subject to verification, the facility's stack test results are believed to have subsequently complied with the limitations set by the consent order. There is not enough information to determine if this is a complete historic pathway. Because the incinerator was demolished in 2005 and the MTS ceased operations in 2001, this is not a current pathway.

2 PROJECT STATUS

Activity		Date(s)/Comments
Phase 1 Environmental Site Assessment	x	April 1999 and Feb 2003 update
Site Characterization	x	Phase II completed July 2004
Remedial Investigation	☐	
Remedy Selection	☐	
Remedial Design/Remedial Action Implementation	X	Heating oil UST tightness test failure was addressed; no discharge found; awaiting spill closure by DEC.
Use Restrictions (Environmental Easements or Institutional Controls)	☐	

Activity		Date(s)/Comments
Construction Completion	☐	
Site Closeout/No Further Action Determination	☐	

- NYSDEC Site Code(s): #0012519 EPA ID # NYD986972008

3 SITE OWNERSHIP HISTORY

- Respondent Member: X Yes ☐ No

Owner	Occupant	Type of Operation	Years
Unknown	AK Bolan Empire Refining Company	Unknown type of Refining	1887-Unknown (likely 1908)
City of New York	DOS	VESTING OF PARCEL	1908
City of New York	DOS	INCINERATOR operative	1949-94
City of New York	DOS	TRANSFER STATION operation	1956-2001
City of New York	DOS	WAREHOUSE; transfer station used for storage; incinerator demolished 2004-05	2001-PRES

4 PROPERTY DESCRIPTION

The site is adjacent to Newtown Creek and occupies approximately 6.3 acres, of which approximately 3.5 acres is upland. The site is bounded by Newtown Creek to the north, Whale Creek Canal to the west, Kingsland Avenue (Green Street) to the south and North Henry Street to the east. The northern boundary of the site along the U.S. Pierhead Line measures approximately 400 feet, the southern boundary along Green Street is approximately 350 feet in length, the eastern boundary along North Henry Street is approximately 500 feet in length and the western and northern boundary along Whale Creek is approximately 750 feet in length. The area is zoned M3-1. M3 districts are designated for areas with heavy industries that general noise, traffic, or pollutants (NYC Department of City Planning 2011). The site is located in Brooklyn Community District 1.

5 CURRENT SITE USE

The MTS building is used as a warehouse for the New York City Department of Sanitation (DOS)-related materials (plows, waste baskets, paper, and tissue paper). Also, a 50,000-

square foot building on land and two tented structures are likewise used for DSNY supply storage, and several construction-type trailers are on the site. There is also some DEP use of the site for construction staging for the wastewater treatment plant.

6 SITE USE HISTORY

Prior to the City's ownership of the site, a manufacturing facility and oil storage terminal occupied the site. The 1887 Sanborn map showed the AK Bolan Empire Refining Co. occupied the site with numerous storage tanks present on the site and buildings labeled for "coal storage" and "storage and filling of can & barrels." Among the buildings noted were a coal shed, several storage tanks, filling and storage buildings (Sanborn 1887). It is not known when refinery operations ceased. Because the parcel was vested to the City of New York in 1908 and the site was used as a street cleaning facility at that time, one could speculate that refinery operations ceased in 1908.

The City of New York (Street Cleaning) began using the site in 1908 and in 1912 the site appeared to have been demolished with no buildings or structures remaining (Miniature Atlas of the Borough of Brooklyn 1912). The site formerly contained the DOS Greenpoint Incinerator, built in the 1940's and closed in 1994. This facility burned municipal solid waste. Sanborn maps from 1965 and 1989 show identical incinerator operations (receiving pit, furnace, boiler rooms) (Sanborn, 1965 and 1989). The incinerator was demolished in 2004-05. A DOS Marine Transfer Station operated on the site between 1956 and 2001. The MTS, constructed over the water, transferred loose (not compacted or containerized) municipal solid waste from trucks to open hopper barges for transport to City landfills. Bottom ash residue from the incinerator was also transferred to barges in this facility.

7 CURRENT AND HISTORICAL AREAS OF CONCERN AND COPCs

Uplands:

Portions of the site were previously occupied by manufacturing facilities, an oil storage terminal/ a small refinery operation. The facility was inspected by the City of Brooklyn Department of Health as part of the department's inspection of oil refineries. In the report, which discussed five refineries, it was noted that leaking tanks and pipes were observed and that some of this was escaping containment and migrating into the creek (Brooklyn

Department of Health 1887). Accordingly, residual contamination of the subsurface soil and groundwater may exist. The report also noted the concern of smoke escaping to the air and while describing what occurred at the refinery, the Empire Refining Co. was found to be an offender in this case (Brooklyn Department of Health 1887). It is not known when refinery operations ceased but by 1912 the refinery works had been demolished (Miniature Atlas of the Borough of Brooklyn 1912). Because the parcel was vested to the City of New York in 1908 and the site was used as a street cleaning facility at that time, one could speculate that refinery operations ceased in 1908.

The incinerator building, which has since been demolished, contained asbestos, lead-based paint, and incinerator fly ash; these were removed prior to demolition. While in operation the incinerator was a registered RCRA conditionally exempt, small and large quantity generator (EDR 2010). Hazardous Waste manifests for offsite disposal contained the D006 waste code for cadmium-containing waste (EDR 2010). In addition, the four incinerator stacks discharged smoke and fly ash particulates to the City's air shed subject to limitations and testing pursuant to a consent decree with USEPA. The decree provided for a schedule of capital improvements and a stack testing procedure, plus installation of continuous emissions monitoring on all four incinerator units, and an agreed limit of three opacity excursions per calendar quarter (caused by wet or dense garbage) pending implementation of the upgrades. Upon information, subject to verification, periodic stack tests were conducted of the incinerator emissions pursuant to regulatory requirements and the results complied with the limitations set by the consent order.

A 5,000-gallon underground oil tank (UST) was located adjacent to the incinerator building. On February 22, 2001, the underground tank failed tightness testing. The tank was removed and no evidence of a petroleum release was found. Groundwater was not impacted by this spill incident. Spill closure has been requested.

Overwater Activities X Yes ☐ No

Within the MTS, DOS previously transferred refuse and quenched incinerator residue/bottom ash to open hopper barges, as previously described above. There were no documents found indicating fugitive refuse or ash.

Spills

On February 22, 2001, a #2 fuel oil tank failed tightness testing (NYSDEC Spill no. 0012519). As noted above, the 5000-gallon tank was removed, no release was found, and the spill awaits closure.

Notice of Violation

Records note that NYSDEC issued DOS a Notice of Violation (NOV) for unpermitted discharge to Newtown Creek from the facility on July 26, 1990. The pump believed to have caused the discharge was subsequently fixed. DOS is searching its records for documents related to the NOV.

8 PHYSICAL SITE SETTING

Geology

The depth to bedrock at the site ranges from approximately 50 feet to more than 100 feet below grade. Subsurface material consists of moderately hard, medium to fine-grained seamy, weathered gray gneiss with quartz intrusions. Overburden consists of soft, black organic silt and sand at a depth of 5 feet to 15 feet below grade. Much of site consists of historic fill. As described in the 2004 Phase II ESI, eleven soil borings were taken. The soil borings show the presence of sand, clay, gravel, and fill (see soil boring logs in Phase II ESI). Two soil samples were taken and analyzed for RCRA hazardous waste, and none were found.

Hydrogeology

According to the Phase II ESI conducted for the site, water was noted at six to eight feet below ground surface, with some variation over the site. As discussed in the Phase II ESI, three permanent monitoring wells were installed at three of the boring locations and two groundwater samples were collected from open boreholes. Two samples were collected in the inferred upgradient direction from the incinerator building and two in the inferred downgradient direction. One groundwater sample was collected from a boring located near the UST. The three permanent monitoring wells were surveyed and used to calculate groundwater flow direction. Based on the various conditions of the site at the time of sampling, local groundwater flows south toward the wastewater treatment plant.

9 NATURE AND EXTENT *(CURRENT UNDERSTANDING OF ENVIRONMENTAL CONDITIONS)*

9.1 Soil

- Soil Investigations X Yes ☐ No
- Bank Samples ☐ Yes X No

As discussed in the 2004 Phase II ESI, eleven soil borings were drilled. A surface sample was collected from one of the boring locations; subsurface soil samples were collected from eleven locations. A subsurface soil sample was collected from the boring located near the area near the UST. Using a Photo Ionization Detector, each of the soil samples collected was screened for the presence of organic vapors. All of the soil samples collected were analyzed for VOCs, SVOCs, Pesticides/PCBs, Asbestos and RCRA metals. In addition, when ash residue was found within the sample, soil samples were tested for TCLP metals and SVOCs. Minor exceedances of state guidelines for SVOCs, a pesticide, and metals were observed; however, no RCRA hazardous waste found. The analytical results of the soil samples are shown in Tables 1 to 4 of the Phase II report (2004), and are recreated below in their entirety. Petroleum odor was also noted in several borings. The petroleum levels were highest next to the former Mobil Oil terminal, where a massive petroleum spill occurred from aboveground storage tanks. A former petroleum heating oil UST in the northwestern portion of the site failed a tightness test and has been removed; no release was found and the spill number awaits closure.

TABLE 1
VOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
GREENPOINT INCINERATOR
BROOKLYN, NEW YORK

VOLATILE ORGANIC COMPOUNDS (ug/kg) METHOD 8260B	GP-B-1 (4-6)	GP-B-1 (10-12)	GP-B-2 (4-8)	GP-B-2S	GP-B-3 (3-7)	GP-B-4 (0-4)	GP-B-5 (4-8)	GP-B-6 (0-4)	*GP-B-7 (5-7)	GP-B-8 (0-4)	GP-B-9 (4-8)	GP-B-10 (8-12)	GP-B-11 (4-8)	GP-B-12 (4-8) Duplicate GP-B-11 (4-8)	NYSDEC TAGM (ug/Kg)
Chloromethane	U < 0.9	U < 2	U < 0.8	U < 0.9	U < 1	U < 0.8	U < 0.9	U < 0.8	U < 0.9	U < 0.8	U < 0.9	U < 1	U < 0.8	U < 0.8	
Vinyl chloride	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	200
Bromomethane	U < 3	U < 5	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	
Chloroethane	U < 0.8	U < 1	U < 0.7	U < 0.8	U < 0.9	U < 0.7	U < 0.8	U < 0.7	U < 0.8	U < 0.7	U < 0.8	U < 1	U < 0.7	U < 0.7	1,900
1 1-Dichloroethene	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	400
Carbon disulfide	U < 0.2	1 3	U < 0.2	U < 0.2	U < 0.3	U < 0.2	U < 0.2	U < 0.2	6	U < 0.2	2	U < 0.3	U < 0.2	U < 0.2	2,700
Acetone	U < 6	J 21	U < 5	U < 6	20	U < 5	11	U < 5	26	U < 5	18	U < 7	U < 5	U < 5	200
Methylene chloride	J B 2	J B 5	J B 3	B 5	J B 2	J B 4	B 6	J B 3	B 6	J B 2	J B 2	B 11	J B 2	J B 3	100
trans-1 2-Dichloroethene	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	300
1 1-Dichloroethane	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	200
Vinyl acetate	U < 3	U < 6	U < 3	U < 3	U < 4	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 4	U < 3	U < 3	
cis-1 2-Dichloroethene	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	
2-Butanone (MEK)	U < 3	U < 6	U < 3	U < 3	U < 4	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 4	U < 3	U < 3	300
Chloroform	U < 0.7	U < 1	U < 0.6	U < 0.7	U < 0.8	U < 0.6	U < 0.7	U < 0.6	U < 0.7	U < 0.6	U < 0.7	U < 0.8	U < 0.6	U < 0.6	300
1 1 1-Trichloroethane	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	11	U < 0.5	U < 0.5	800
Carbon tetrachloride	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	600
Benzene	J 0.8	15	U < 0.5	U < 0.6	J 3	J 1	U < 0.6	J 1	J 2	U < 0.5	8	J 5	U < 0.5	U < 0.5	60
1 2-Dichloroethane	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	100
Trichloroethene	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	J 1	U < 0.6	U < 0.5	U < 0.6	J 7	U < 0.5	U < 0.5	700
1 2-Dichloropropane	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	
Bromodichloromethane	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	
cis-1 3-Dichloropropene	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	300
4-Methyl-2-pentanone (MIBK)	U < 3	U < 6	U < 3	U < 3	U < 4	U < 3	U < 3	U < 3	U < 3	U < 3	U < 3	U < 4	U < 3	U < 3	1,000
Toluene	J 0.5	1 6	U < 0.4	U < 0.4	J 1	J 2	U < 0.4	J 3	1 2	U < 0.4	J 2	11	U < 0.4	U < 0.4	1,500
trans-1 3-Dichloropropene	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	
1 1 2-Trichloroethane	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	
Tetrachloroethene	J 0.6	U < 0.9	U < 0.4	U < 0.4	U < 0.5	J 0.6	U < 0.4	J 1	U < 0.4	U < 0.4	U < 0.5	16	U < 0.4	U < 0.4	1,400
2-Hexanone	U < 4	U < 7	U < 4	U < 4	U < 4	U < 4	U < 4	U < 4	U < 4	U < 4	U < 4	U < 5	U < 4	U < 4	
Dibromochloromethane	U < 0.4	U < 0.9	U < 0.4	U < 0.4	U < 0.5	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.4	U < 0.5	U < 0.5	U < 0.4	U < 0.4	
Chlorobenzene	U < 0.5	U < 1	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	1,700
Ethylbenzene	U < 0.4	100	U < 0.4	U < 0.4	J 1	J 0.6	U < 0.4	1 1	J 0.5	U < 0.4	J 1	J 2	U < 0.4	U < 0.4	5,500
Styrene	U < 0.5	1 4	U < 0.5	U < 0.6	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.5	U < 0.6	U < 0.7	U < 0.5	U < 0.5	
Bromoform	U < 0.7	U < 1	U < 0.6	U < 0.7	U < 0.8	U < 0.6	U < 0.7	U < 0.6	U < 0.7	U < 0.6	U < 0.7	U < 0.8	U < 0.6	U < 0.6	
1 1 2 2-Tetrachloroethane	U < 1	U < 2	U < 0.9	U < 1	U < 1	U < 0.9	U < 1	U < 1	U < 1	U < 0.9	U < 1	U < 1	U < 0.9	U < 0.9	600
Xylenes (total)	U < 1	24	U < 1	J 2	J 3	J 2	U < 1	J 3	1 3	U < 1	J 4	8	U < 1	U < 1	1,200

Notes:
U < = Analyte not detected above the Laboratory Reporting Limit (detection limit noted); There may also be additional flags other than U used for internal Laboratory QA/QC purposes.
J = Result is an estimated value below the reporting limit or a tentatively identified compound. B = Compound was found in the blank and sample.
NYSDEC = New York State Department of Environmental Conservation TAGM = Technical and Administrative Guidance Memorandum
* = GP B-7 (5-7) is identified as GP MSD (B-7) in the laboratory analytical report
Blank indicates Standard Not Established
Bold indicates analytes detected above the Standards

TABLE 2
SEMI-VOLATILE ORGANIC COMPOUNDS
SOIL ANALYTICAL RESULTS
GREENPOINT INCINERATOR
BROOKLYN, NEW YORK

SEMI-VOLATILE ORGANIC COMPOUNDS (ug/kg) METHOD 8270C	GP-B-1 (4-6)	GP-B-1 (10-12)	GP-B-2 (4-8)	GP-B-2S	GP-B-3 (3-7)	GP-B-4 (0-4)	GP-B-5 (4-8)	GP-B-6 (0-4)	*GP-B-7 (5-7)	GP-B-8 (0-4)	GP-B-9 (4-8)	GP-B-10 (8-12)	GP-B-11 (4-8)	GP-B-12 (4-8) Duplicate GP-B-11 (4-8)	NYSDEC TAGM (ug/Kg)
Naphthalene	U < 69	J 2500	U < 32	J 130	J 210	U < 66	J 210	J 150	J 1200	J 160	J 2500	J 430	U < 32	U < 32	13,000
2-Methylnaphthalene	U < 60	J 670	U < 28	J 48	J 81	U < 58	J 100	J 57	J 640	J 64	J 1200	J 240	U < 28	U < 28	36,400
Acenaphthylene	J 160	5,100	U < 11	J 81	J 460	J 110	J 360	580	J 580	J 300	J 2900	J 190	U < 11	U < 11	41,000
Acenaphthene	J 130	J 3000	U < 15	J 140	J 300	U < 31	J 230	J 35	J 1800	J 130	J 1900	J 390	U < 15	U < 15	50,000
Fluorene	J 86	J 2100	U < 20	J 140	J 180	U < 41	J 140	J 39	J 2100	J 150	J 2700	J 670	U < 20	U < 20	50,000
Phenanthrene	2,000	16,000	U < 24	1,200	1,600	J 310	1,100	530	17,000	1,600	19,000	18,000	U < 24	U < 24	50,000
Anthracene	J 360	5,900	U < 12	390	J 780	J 120	J 450	370	4,600	J 500	4,600	4,400	U < 12	U < 12	50,000
Fluoranthene	3,500	13,000	U < 22	2,000	3,200	J 510	1,800	2,500	16,000	1,900	12,000	17,000	U < 22	U < 22	50,000
Pyrene	2,200	17,000	U < 19	2,100	3,800	J 380	1,700	1,400	15,000	2,500	17,000	14,000	U < 19	U < 19	50,000
Benzo(a)anthracene	**1,200**	**8,000**	U < 15	**800**	**1,600**	J **240**	**910**	**1,300**	**6,700**	**1,100**	**7,300**	**6,200**	U < 15	U < 15	224
Chrysene	**1,200**	**8,100**	U < 17	**740**	**1,600**	J 250	**930**	**1,300**	**6,700**	**1,400**	**7,300**	**6,000**	U < 17	U < 17	400
Benzo(b)fluoranthene	**1,100**	**6,300**	U < 39	660	**1,100**	J 270	J 610	900	**4,100**	**1,200**	**6,100**	**3,100**	U < 37	U < 38	1,100
Benzo(k)fluoranthene	**1,700**	**7,200**	U < 40	620	**1,300**	J 310	960	**1,400**	**4,700**	**1,100**	**6,000**	**4,700**	U < 38	U < 39	1,100
Benzo(a)pyrene	**1,200**	**9,300**	U < 16	**760**	**1,800**	J **290**	**920**	**1,500**	**5,800**	**1,200**	**8,800**	**4,700**	U < 16	U < 16	61
Indeno(1 2 3-cd)pyrene	J 250	**4,200**	U < 18	510	1,100	J 84	J 380	500	**J3200**	J 350	**6,100**	2,700	U < 18	U < 18	3,200
Dibenzo(a h)anthracene	J **130**	**J 2400**	U < 18	**J 240**	J **550**	U < 37	J **220**	J **240**	**J 1800**	**J 210**	**J 3400**	**J 1300**	U < 18	U < 18	14
Benzo(ghi)perylene	J 250	4,000	U < 17	560	1,100	U < 35	J 370	540	J 3300	J 350	6,700	2,800	U < 17	U < 17	50,000

Notes:
U < = Analyte not detected above the Laboratory Reporting Limit (detection limit noted); There may also be additional flags other than U used for internal Laboratory QA/QC purposes.
J = Result is an estimated value below the reporting limit or a tenatively identified compound B = Compound was found in the blank and sample.
NYSDEC = New York State Department of Environmental Conservation TAGM = Technical and Administrative Guidance Memorandum
* = GP B-7 (5-7) is identified as GP MSD (B-7) in the laboratory analytical report
Blank indicates Standard Not Established
Bold indicates analytes detected above the Standards

TABLE 3
RCRA METALS
SOIL ANALYTICAL RESULTS
GREENPOINT INCINERATOR
BROOKLYN, NEW YORK

RCRA METALS (mg/kg) METHOD 6010B / 7471A	GP-B-1 (4-6)	GP-B-1 (10-12)	GP-B-2 (4-8)	GP-B-2S	GP-B-3 (3-7)	GP-B-4 (0-4)	GP-B-5 (4-8)	GP-B-6 (0-4)	*GP-B-7 (5-7)	GP-B-8 (0-4)	GP-B-9 (4-8)	GP-B-10 (8-12)	GP-B-11 (4-8)	GP-B-12 (4-8) Duplicate GP-B-11 (4-8)	NYSDEC TAGM (mg/Kg)
Mercury	B 0.18	B 0.78	U < 0.046	B 0.097	B 0.23	B 0.15	B 0.3	B 0.32	B 0.95	B 0.2	B 0.49	B 0.31	U < 0.042	U < 0.038	0.1
Arsenic	B 5.7	B 8	U < 1.2	B 2.1	B 4.9	B 2.7	B 4.4	B 5.4	B 6.3	B 3.9	B 9.8	19.1	U < 1.2	U < 1.2	7.5
Barium	140	2,800	4.4	198	144	39.3	85.8	118	195	73.1	442	49.6	5.5	8	300
Cadmium	B 1.7	U < 1.5	U < 1.2	B 3.3	U < 1.4	4.2	U < 1.2	U < 1.3	B 1.3	U < 1.3	U < 1.3	U < 1.6	U < 1.2	U < 1.2	1
Chromium	18.9	16.2	B 1.7	19.7	18.3	8.4	28.1	12.8	23.3	9.2	14.5	10.9	5.9	7	10
Lead	216	916	B 1.4	1,420	151	144	90.6	159	270	193	468	68.7	B 2	B 6.7	SB
Selenium	U < 2	U < 2.3	U < 1.9	U < 1.9	U < 2.2	U < 2	U < 1.9	U < 2	U < 2	U < 2.1	U < 2.1	U < 2.5	U < 2	U < 2	2
Silver	U < 0.38	U < 0.44	U < 0.35	U < 0.36	U < 0.41	U < 0.38	U < 0.35	U < 0.38	U < 0.38	U < 0.39	U < 0.4	U < 0.47	U < 0.37	U < 0.37	SB

Notes:
U < = Analyte not detected above the Laboratory Reporting Limit (detection limit noted); There may also be additional flags other than U used for internal Laboratory QA/QC purposes.
B = Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL
NYSDEC = New York State Department of Environmental Conservation TAGM = Technical and Administrative Guidance Memorandum
N/A = Not Analyzed
SB = Site Background levels (SB for Lead = 400 mg/Kg)
* = GP B-7 (5-7) is identified as GP MSD (B-7) in the laboratory analytical report
Blank indicates Standard Not Established
Bold indicates analytes detected above the Standards

TABLE 3a
TOTAL AND TCLP LEAD CONCENTRATIONS IN SOIL AT THE GREENPOINT AVENUE INCINERATOR

	GP-B-1 (10-12')	GP-B-2S (0-2")	GP-B-9 (4')
Total Lead (mg/Kg)	2.190	244.0	403.0
TCLP Lead (mg/L)	ND	0.487	0.765

BOLD Results indicate concentration above regulatory levels for Hazardous Waste Classification
ND = Not Detected TCLP = Toxicity Characteristic Leachate Procedure

TABLE 4
PESTICIDES / PCBs
SOIL ANALYTICAL RESULTS
GREENPOINT INCINERATOR
BROOKLYN, NEW YORK

PESTICIDES / PCBs (ug/kg) METHOD 8081A; 8082	GP-B-1 (4-6)	GP-B-1 (10-12)	GP-B-2 (4-8)	GP-B-2S	GP-B-3 (3-7)	GP-B-4 (0-4)	GP-B-5 (4-8)	GP-B-6 (0-4)	*GP-B-7 (5-7)	GP-B-8 (0-4)	GP-B-9 (4-8)	GP-B-10 (8-12)	GP-B-11 (4-8)	GP-B-12 (4-8) Duplicate GP-B-11 (4-8)	NYSDEC TAGM (ug/Kg)
alpha-BHC	U < 0.29	3.2	U < 0.28	U < 0.3	U < 0.35	U < 0.28	U < 0.3	U < 0.29	U < 0.3	2.4	2.2	U < 0.37	U < 0.28	U < 0.28	110
beta-BHC	J 1.4	U < 0.32	U < 0.27	U < 0.3	U < 0.34	U < 0.28	J 0.86	U < 0.28	U < 0.3	U < 0.28	U < 0.31	J 0.77	U < 0.27	U < 0.27	200
delta-BHC	U < 0.11	U < 0.12	U < 0.1	U < 0.11	U < 0.13	U < 0.11	U < 0.11	U < 0.11	U < 0.11	U < 0.11	U < 0.12	U < 0.14	U < 0.1	U < 0.1	300
gamma-BHC (Lindane)	U < 0.16	U < 0.18	U < 0.15	U < 0.17	U < 0.19	U < 0.16	U < 0.17	U < 0.16	U < 0.17	17	U < 0.17	U < 0.2	U < 0.15	U < 0.15	60
Heptachlor	U < 0.16	J 1.5	U < 0.15	U < 0.17	U < 0.19	J 0.36	J 1.2	U < 0.16	U < 0.17	9	J 1.1	U < 0.2	U < 0.15	J 0.6	100
Aldrin	U < 0.38	2.4	U < 0.36	U < 0.39	U < 0.46	U < 0.37	U < 0.39	U < 0.37	U < 0.39	11	U < 0.41	U < 0.48	U < 0.36	U < 0.36	41
Heptachlor epoxide	J 1.3	6.3	U < 0.12	J 0.46	1.1	U < 0.12	J 1.3	34	4.9	6	5.4	J 1.2	U < 0.11	U < 0.11	20
Endosulfan I	U < 0.16	U < 0.17	U < 0.15	U < 0.16	U < 0.19	U < 0.15	U < 0.16	U < 0.15	U < 0.16	U < 0.15	U < 0.17	U < 0.2	U < 0.15	U < 0.15	900
Dieldrin	J 0.56	U < 0.38	U < 0.33	J 3.1	U < 0.41	U < 0.33	J 0.75	J 0.73	J 2.6	16	U < 0.37	U < 0.43	U < 0.32	U < 0.32	44
4 4'-DDE	13	13	U < 0.44	5	4.1	J 2.3	6.4	19	18	16	18	13	U < 0.44	U < 0.43	2,100
Endrin	U < 0.95	19	U < 0.9	U < 0.98	U < 1.1	U < 0.92	U < 0.98	8.1	12	33	19	J 5.8	U < 0.9	U < 0.89	100
Endosulfan II	U < 0.18	U < 0.2	U < 0.17	U < 0.19	U < 0.22	U < 0.18	U < 0.19	U < 0.18	U < 0.19	U < 0.18	U < 0.19	U < 0.23	U < 0.17	U < 0.17	900
4 4'-DDD	J 2.3	U < 0.45	U < 0.39	U < 0.42	J 2.1	J 1.7	J 2.3	U < 0.4	26	U < 0.39	U < 0.44	U < 0.51	U < 0.38	U < 0.38	2,900
Endosulfan sulfate	U < 0.18	U < 0.2	U < 0.18	U < 0.19	U < 0.22	U < 0.18	U < 0.19	U < 0.18	U < 0.19	U < 0.18	U < 0.2	U < 0.23	U < 0.17	U < 0.17	1,000
4 4'-DDT	7.1	U < 0.36	U < 0.31	0.56	U < 0.4	J 2.1	5.3	4.4	U < 0.34	18	U < 0.35	5	U < 0.31	U < 0.31	2,100
Methoxychlor	U < 2.3	34	U < 2.1	U < 2.3	U < 2.7	U < 2.2	U < 2.3	46	U < 2.3	65	84	U < 2.8	U < 2.1	U < 2.1	
alpha-Chlordane	U < 0.12	U < 0.13	U < 0.11	U < 0.12	U < 0.14	U < 0.11	J 1.6	U < 0.11	U < 0.12	U < 0.11	U < 0.13	U < 0.15	J 0.68	U < 0.11	
gamma-Chlordane	J 1.5	4.1	U < 0.092	U < 0.1	J 0.67	U < 0.094	J 1.4	J 1.5	2.5	2.6	J 1.7	U < 0.12	J 0.8	J 0.17	540
Toxaphene	U < 5.2	U < 5.7	U < 4.9	U < 5.3	U < 6.2	U < 5	U < 5.3	U < 5	U < 5.4	U < 5	U < 5.5	U < 6.5	U < 4.9	U < 4.8	
Endrin aldehyde	U < 0.34	J 3.2	U < 0.33	U < 0.36	U < 0.41	U < 0.33	0.98	U < 0.34	U < 0.36	U < 0.33	4.9	U < 0.43	U < 0.32	U < 0.32	
Endrin ketone	11	U < 0.17	U < 0.15	3.3	U < 0.18	U < 0.15	U < 0.16	10	19	U < 0.15	U < 0.16	U < 0.19	U < 0.14	U < 0.14	
Aroclor 1016	U < 3	U < 3.3	U < 2.9	U < 3.1	U < 3.6	U < 2.9	U < 3.1	U < 2.9	U < 3.1	U < 2.9	U < 3.2	U < 3.8	U < 2.8	U < 2.8	1,000/10,000**
Aroclor 1221	U < 1.6	U < 1.8	U < 1.6	U < 1.7	U < 2	U < 1.6	U < 1.7	U < 1.6	U < 1.7	U < 1.6	U < 1.8	U < 2.1	U < 1.5	U < 1.5	1,000/10,000**
Aroclor 1232	U < 2	U < 2.2	U < 1.9	U < 2.1	U < 2.4	U < 1.9	U < 2	U < 1.9	U < 2.1	U < 1.9	U < 2.1	U < 2.5	U < 1.9	U < 1.9	1,000/10,000**
Aroclor 1242	U < 3.2	U < 3.5	U < 3	U < 3.3	U < 3.8	U < 3.1	U < 3.3	U < 3.1	U < 3.3	U < 3.1	U < 3.4	U < 4	U < 3	U < 3	1,000/10,000**
Aroclor 1248	U < 2.9	U < 3.2	U < 2.7	U < 3	U < 3.4	U < 2.8	U < 3	U < 2.8	U < 3	U < 2.8	U < 3.1	U < 3.6	U < 2.7	U < 2.7	1,000/10,000**
Aroclor 1254	J 10	U < 1.4	U < 1.2	U < 1.3	U < 1.6	J 16	U < 1.3	U < 1.3	U < 1.3	U < 1.2	U < 1.4	24	U < 1.2	U < 1.2	1,000/10,000**
Aroclor 1260	32	U < 4.7	U < 4	27	J 18	J 16	J 13	27	170	J 17	U < 4.6	33	U < 4	U < 4	1,000/10,000**

Notes:
U < = Analyte not detected above the Laboratory Reporting Limit (detection limit noted); There may also be additional flags other than U used for internal Laboratory QA/QC purposes.
J = Result is an estimated value below the reporting limit or a tentatively identified compound.
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
* = GP B-7 (5-7) is identified as GP MSD (B-7) in the laboratory analytical report
** = 1,000 ug/Kg surface/10,000 ug/Kg subsurface
Blank indicates Standard Not Established
Bold indicates analytes detected above the Standards

9.2 Groundwater

- Groundwater Investigations X Yes ☐ No
- NAPL Presence (Historical & Current) ☐ Yes X No
- Dissolved COPC Plumes ☐ Yes X No

As discussed in the Phase II, two samples were collected in the inferred upgradient direction from the incinerator building and two in the inferred downgradient direction. One groundwater sample was collected from one of the open boreholes located near the UST. Based on the various conditions of the site at the time of sampling, local groundwater flows south toward the wastewater treatment plant. An elevation difference of 4.73 feet was observed between MW-1 and MW-3. The extreme gradient is indicative of the ongoing groundwater/petroleum recovery at the adjacent Mobil facility, or a subsurface dewatering program from the construction of the wastewater treatment plant. The groundwater samples were collected and analyzed for VOCs, SVOCs, Pesticides/PCBs and RCRA metals. Minor exceedances of benzene and SVOCs were noted. Concentrations of metals exceeded the state standards moderately to significantly. The analytical results of the groundwater samples are shown in Tables 5a to 8b of the Phase II report (2004).

9.3 Surface Water

- Surface Water Investigation ☐ Yes X No
- General or Individual Stormwater Permit (Current or Past) ☐ Yes X No
- Do other non-stormwater wastes discharge to the system? ☐ Yes X No
- Stormwater Data ☐ Yes X No
  Stormwater loadings from site runoff were estimated for the 2005 SWMP FEIS document, but not measured.
- Catch Basin Solids Data ☐ Yes X No
- Wastewater Permit ☐ Yes X No
- Wastewater Data ☐ Yes X No

Agency	Permit/Approval	Permit Number	Expiration Date	Description
NYSDEC	Tidal Wetlands/Water Quality	2-6500-00043/00012; 2-	12/6/2020	Maintenance of Lawfully existing waterfront structures within the City of

	Certification/Excavation and Fill in Navigable Waters	6500-00043/00013; 2-6500-00043/00014		New York, or elements thereof, owned by New York City Department of Sanitation.

9.4 Sediment

- Creek Sediment Data ☐ Yes X No

During the operation of the MTS, DOS performed maintenance dredging in the adjacent area of the Creek. DOS held a now-expired 10-year maintenance dredging permit from the Army Corps of Engineers that encompassed Greenpoint and currently has a 10-year DEC maintenance dredging permit that expires in 2013. The maintenance dredging permits cover multiple sites.

The known dredging permits are below.

Agency	Permit/Approval	Permit Number	Expiration Date
Ports & Trade	Work Permit/Notice	840160	8/1/85
Ports & Trade	Work Permit/Notice	8066818	8/1/85
USACE	Section 10	12094	9/25/84
NYSDEC	Protection of Waters	20000-0112 (22401-GP)	12/31/80
NYSDEC[1]	Protection of Waters	2-6101-00022/00010	10/31/03
NYSDEC[1]		2-9902-00068/00001; 2-9902-00068/00002; 2-9902-00068/00003	9/18/2003
UASCE[2]	Work Permit	98-00840	2008

[1]DEC permit (2-6101-00022/00010) was issued on October 19, 1998 for dredging of 23,000 cy and DEC permits (2-9902-00068/00001; 2-9902-00068/00002; 2-9902-00068/00003) were issued on September 18, 2003 for maintenance dredging at 5 marine transfer stations, including Greenpoint.

[2]USACE Dredge permit for Greenpoint (10 year permit) received in 1998 indicated that approximately 23,019 cy of dredging was anticipated.

Creek sediments were sampled near the site in 1996 and in 2003. Sampling was conducted at a total of 13 stations and 1-2 cores were taken at each station. The following tables are excerpted from the 2003 sampling results. The FEIS conducted for the 2000 SWMP concluded that sediment quality would be expected to reflect typical sediment quality encountered within the New York Harbor Complex. Furthermore, the dredged materials from periodic dredging conducted in the past have routinely met all requirements for upland disposal at licensed disposal facilities in New York State and elsewhere.

Table 2-15. Summary of Sediment Quality
2003 Sampling Event (BBL)
Greenpoint Marine Transfer Station

	Samples With Detections	Total Samples	Concentration Range (µg/g)	Average Concentration (µg/g)	Sediment Class[1],[2]
Metals					
Arsenic	10	10	1.3 - 62	21.4	B
Cadmium	5	10	< 0.89 - 88	< 23.8 [3]	C
Copper	10	10	8.7 - 2580	784	C
Lead	10	10	3.2 - 942	428	C
Mercury	6	10	< 0.02 - 4.5	< 1.45 [3]	C
PAHs and Petroleum-Related Compounds					
Benzene	7	10	< 0.006 - 1	< 0.1 [3]	A
Total BTX	5	10	< 0.01 - 16	< 1.6 [3]	B
Total PAHs [4],[5]	5	10	< 0.093 - 669	< 156 [3]	C
Pesticides					
Sum of DDT+DDD+DDE [5]	2	10	< 0.005 - 0.7	< 0.18 [3]	C
Chlorinated Hydrocarbons					
Total PCBs[5],[6]	6	10	< 0.014 - 5.5	<2.2[3]	C
Dioxin (pg/g)	NS [7]	NS	-	-	-

Notes: [1] Sediment Class from New York State Department of Environmental Conservation (NYSDEC) Draft Technical & Operational Guidance Series (TOGS) 5.1.9, In-Water and Riparian Management of Sediment and Dredge Material, December 2003
[2] Class Determined Based on Average Concentration
[3] If non-detect, one half detection limit used to calculate average
[4] Total PAH - Ontario Ministry of Environment Total PAH
[5] If non-detect, one half detection limit used to calculate total
[6] Total PCBs - sum of Aroclors 1242, 1254, 1260
[7] NS - Not sampled

Table 2-16. Summary of Sediment Quality
1996 Sampling Event (HydroQual)
Greenpoint Marine Transfer Station

	Samples With Detections	Total Samples	Concentration Range (µg/g)	Average Concentration (µg/g)	Sediment Class[1],[2]
Metals					
Arsenic	8/8	8	25.6 -91	50.8	B
Cadmium	8/8	8	8.86 - 67.1	34.2	C
Copper	8/8	8	510 - 2030	1252	C
Lead	8/8	8	337 - 1550	869	C
Mercury	8/8	8	2.37 - 8.27	4.5	C
PAHs and Petroleum-Related Compounds					
Benzene	NS[3]	NS	-	-	-
Total BTEX	NS	NS	-	-	-
Total PAHs [5] [6]	0	8	< 96 - < 421	< 143 [4]	C
Pesticides					
Sum of DDT+DDD+DDE	NS	NS	-	-	-
Chlorinated Hydrocarbons					
Total PCBs [6] [7]	0	8	< 2.03 - < 3.02	< 2.52[4]	C
Dioxin (pg/g)	0	1	140	-	C

Notes: [1] Sediment Class from New York State Department of Environmental Conservation (NYSDEC) Draft Technical & Operational Guidance Series (TOGS) 5.1.9, In-Water and Riparian Management of Sediment and Dredge Material, December 2003

[2] Class Determined Based on Average Concentration

[3] NS - Not Sampled

[4] If non-detect, one half detection limit used to calculate average

[5] Total PAH - Ontario Ministry of Environment Total PAH

[6] If non-detect, one half detection limit used to calculate total

[7] Total PCBs - sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260

9.5 Air

- Air Permit ☐ Yes X No
- Air Data X Yes ☐ No
- Air Summary

The four incinerator stacks discharged smoke and fly ash particulates to the City's air shed subject to limitations and testing pursuant to a consent decree with USEPA. The Decree settled, without admission of guilt or liability, alleged CAA violations regarded opacity and particulate matter levels in 1987. The decree provided for a schedule of capital improvements and a stack testing procedure, plus installation of continuous emissions monitoring on all four incinerator units, and an agreed limit of three opacity excursions per calendar quarter (caused by wet or dense garbage) pending implementation of the upgrades. Upon information, subject to verification, periodic stack tests were conducted of the incinerator emissions pursuant to regulatory requirements and the results complied with the limitations set by the consent order. The incinerator no longer operates. The MTS reportedly also had an air facility permit (minor source) for the heating system boiler.

DOS is searching its records for stack results.

10 REMEDIATION HISTORY (INTERIM REMEDIAL MEASURES AND OTHER CLEANUPS)

DOS excavated and removed petroleum contaminated soil found during the construction of current warehouse building. The City separately removed the former 5000-gallon UST that had failed a tightness test, but found no evidence of a petroleum release from the tank.

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Table 1

Potential Areas of Concern and Transport Pathways Assessment – Greenpoint MTS/Incinerator Site

Potential Areas of Concern	Media Impacted					COPCs														Potential Complete Historic or Current Pathway					
						TPH			VOCs																	
Description of Areas of Concern	Surface Soil	Subsurface Soil	Groundwater	Catch Basin Solids	River Sediment	Gasoline-Range	Diesel – Range	Heavier – Range	Petroleum Related (e.g., BETEX)	VOCs	Chlorinated VOCs	SVOCs	PAHs	Phthalates	Phenolics	Metals	PCBs	Herbicides and Pesticides	Dioxins/Furans	Overland Transport	Groundwater	Direct Discharge – Overwater	Direct Discharge – Storm/Wastewater**	Discharge to Sewer/CSO	Bank Erosion
Greenpoint MTS/Incinerator	√	√	√	?	?	√	?		√	√		√	√			√		√		?	?	?	√	?	?

**While there is no documentation that COPCs entered the creek via stormwater/wastewater, direct discharge from stormwater/wastewater may be a potentially complete pathway historically. There is insufficient information to determine whether this is a current pathway.

Notes:
√ - COPCs are/were present in Areas of Concern having a current or historical pathway that is determined to be complete or potentially complete
? - There is not enough information to determine if COPC is/was present in Area of Concern or if pathway is complete
-- - Current or historical pathway has been investigated and shown to be not present or incomplete

COPCs – Constituents of Potential Concern
BTEX - Benzene, toluene, ethylbenzene, and xylenes
PAHs - Polycyclic aromatic hydrocarbons
SVOCs - Semi-volatile Organic Compounds
TPH - Total Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds